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Inaugural Thesis
on
Cathartics

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by
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"Unus et alter .... pannus
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Cathartics

Among the subjects which are presented to the notice of the Physiologist, not the least curious or interesting are the organs by which are prepared for its entrance into their sys= =tems, what may be necessary for the growth and preservation of organized bodies. One of the characteristic differences in the constitu= tion of the two great Kingdoms of Organized Creation, the Animal, and the Vegetable, is the situation and structure of their digestive organs.

In Vegetables they are situated on their sur= =face, the exterior of the roots being their or= =gans of digestion. The substances from which they derive their nourishment are placed by Nature in contact with those parts, and by them are so changed as to be fit=

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=ted for entrance into those vessels by which nutrition is performed, and to be subser= =vient to that process.

But in Animals, the digestive organs are situated in the interior of their bodies. The food which is introduced into them ~~does~~ does not consist solely of what is capable of af= =fording nutrition, but there is combined with it other matter which is not. The portion which is, after being properly elaborated, is taken up and conveyed into the general circu= =lation by the appropriate vessels, while the other portion is rejected. But as the accumulation of the rejected portion with= =in their bodies would materially inter= =fere with the natural actions of Ani= =mals, it is necessary that there should be some apparatus for its removal. We ac= =cordingly find an Alvine Canal pro=

=vided for the purpose in most Animals
In the leech, however, and some other of the lower classes, the same channel is said to afford this outlet, which serves for the reception of food.

In Man, the useless part of the food is removed by the intestines, which are that part of the Alimentary Canal, which ex=
=tends from the pylorus to the anus. They serve besides other important purposes in the animal economy. In them is per=
=formed an important part of the function of digestion. Partly to assist in the above processes, and partly to remove from the blood matters, which having served their purposes in the body, have become effete; various fluids are poured into the intes=
=tines. These are, the bile, the secretion of the pancreas, serum, and mucus.

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The intestinal tube is formed principally of three coats, differing in structure according to the offices they were intended to perform. The internal one is called a mucous membrane, from its surface being illinated by the mucus coming from the numerous glands and follicles entering into its structure. Its surface is thickly studded with minute projections denominated villi. Each of these has entering into its structure, the commencement of a vessel for receiving and conveying the supply to the blood which it derives from the food, and the vessel or vessels which exhale serum. The ducts of the liver and spleen are lined to their minutest ramifications in those organs, by prolongations of this membrane. Exterior to this coat there is a muscular structure, the fibres of which wind

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in a spiral manner forming a complete coat. The above are the structures which are chiefly concerned in the operation of cathartics, the external coat only being an envelope to the organs, separating and protecting them from impressions of contiguous parts.

The alvine evacuations consist not only of the refuse of what is taken in as aliment, but in part of the fluids discharged into the alimentary canal. Those medicines which tend, under ordinary circumstances, to promote or increase these evacuations, are denominated cathartics. Under some particular circumstances articles not included in this class, and which ordinarily have quite a diverse effect, may have this tendency.

Before speaking of the mode in which

cathartics operate, perhaps it will not be altogether improper briefly to notice the manner in which the ingesta are moved along and expelled. The peristaltic motion is the means by which the contents of the intestines are propelled through them. This motion consists in an alternate contraction and dilatation of different portions of the tube. If the muscular coat is the agent; it results a property of those notes or muscles that when the action of them contracts, the action immediately relaxes, enlarging the capacity of the tube in the latter part; in consequence of this dilatation the ingesta are propelled onwards. The peristaltic motion of the intestines being a natural action of them, intended for the propulsion of their contents what cover distends them will excite it.

But the secretion of the liver intestines or pancreas it may have, or purposes it may serve, is just as supposed a peculiar property of exciting the peristaltic motion. It is sufficient to know from the effect the supposed or intended secretion of bile has been observed. [illegible] the various circumstances: the [illegible] or [illegible] the latter either increasing or diminishing, [illegible] according to the change in its qualities that takes place. The use of mercury [illegible] is seen here [illegible] the power in [illegible] a [illegible] of the secretions. Little is known of the use of the pancreas that it would be difficult to determine whether it has or does not exert any influence of this kind in its secretion.

All the fluids poured into the intestines

will however, by alternating their con-
tents (which this is not their sole object,)
cause them to offer less resistance to the pe-
ristaltic motion. Were this not the case,
as the absorbents are constantly active, and
what they take up is in a liquid form,
the ingesta would become infected in
the intestines, long ere they had passed
through their lengthened tract. Should
a part of the fluids discharged into the
intestines, after undergoing some change
be again taken up it would not prevent
their having this effect. The quantity of
air which is expelled is supposed to be
very considerable, and like other excretions,
is intended to separate from the
blood parts which require to be removed
from the body, in consequence of the con-
stant change which is taking place

in its constituent molecules. The mucus protects the membrane whose surface it lines from irritation, and diminishes resistance to the motion of the substance over it.

The ingesta are thus carried through the course of the intestines by actions not under the control of the will. But as the gradual and uncontrolled evacuation of the fæces would be very annoying, they are accumulated in the rectum, their further progress being opposed by the sphincter muscle at the orifice of the canal. Their expulsion is then accomplished by organs under the command of the will; as the abdominal muscles and diaphragm. The latter acts indirectly, being kept in a fixed state by the closure of the glottis which allows the contractions of the former to

the effect, of course, the diameter is
and from [illegible] upon the cavity of
the thorax. The sphincter muscle is also relax
ed, and the resistance to the contraction of
the rectum being removed, the expulsion
of the feces is accomplished
Cathartics operate, by increasing all those
actions, by which the ingesta are propelled,
or which favour their propulsion. They all
increase the peristaltic motion, and most
if not all of them augment the secretions
poured into the intestinal tube. Cullen
says no article produces the latter effect,
that has not likewise the property of in
creasing the peristaltic motion. No pod
is known which disposes its operation;
though anything which would augment the te
nacity of the ingesta, would without any
stimulation to the intestines and ~~increase~~

quicken the motion of the bowels. It is how=
ever possible, that cathartics augment
the exhalation upon the surface of the
intestines more or less, than the appear=
=ance of the evacuations might lead us
to suppose. Part of the fluid exhaled
is usually gradually undergoing some changes
perhaps again taken up by the absor=
=bents, which the action of cathartics may
prevent from taking place, by the rapidity
with which they cause the ingesta to be
moved along. The operation of cathartics up=
=on the excrements, is not confined to their
entering into the structure of the intes=
=tines, but extends to the conditions desire.
The power in many of them of augment=
=ing and changing the biliary secretion
is well known; the principal remedies ad=
=ministered to the liver, which its functions are

deranged, being derived from the fact of the secretion of the liver being a natural stimulus to the intestines, it is not extraordinary that articles which have a control over it, should in consequence thereof, have their influence on the discharges increased.

The influence which some cathartics have upon the liver, has been accounted for, by the association of its function with that of the intestines, and by the mucous membrane of the latter being continued down through its ducts.

Different cathartics possess different properties relative to the modes of operation indicated above. Some of them have been characterized as exerting their influence more particularly upon the muscular fibres of the intestines, others

upon the secreting apparatus. Among the latter, there is a diversity as to the discharges they produce, some bilious, some serous; giving rise to the division into Hydragogues and cholagogues.

There is also some diversity in regard to the part of the intestinal canal, on which different articles operate, the influence of some seeming to be confined to one portion, of others, to much through its whole extent.

These peculiarities merit attention in practice, but do not require more particular notice in the present occasion.

In producing their effects, cathartics undoubtedly increase the vigour of the circulation, (for otherwise the action of no organ can be augmented,) in the

organs concerned. Yet their effects cannot result solely in consequence of this influence on the sanguiferous vessels of the parts; for the operation of all cathartics would be similar, differing only in degree. Why those actions which follow the application of cathartics to the surface of the intestines ~~which~~ should take place, it is impossible to explain. Nor is this sufficiently explained by the articles in question, for it is impossible to account why different cathartics should produce different actions. All that can be done is to note the attendant phenomena, and mark the effects. It does really seem as if individuals operated and effects were the result of combined influence and agents. In defining cathartics we should then

to articles whose tendency is, in ordinary circumstances, to promote the alvine evacuations; because under some particular circumstances, articles strongly claim to be ranked in the class, from more efficient to that purpose. When such evacuations are interrupted in consequence of a morbid condition, and other means are either inadequate to relieve the urgent cases, such means will also be most likely to restore the evacuations. Its particular instances of this may be cited, inflammation of the bowels, in cholera morbus, colic, lithiasis, and spasm, in some of which is the disease and at times [illegible] insuperable difficulty of overcoming the obstruction.

When there is an accumulation of fecal matter in the rectum, a small [illegible] impression made upon [illegible]

cart; as for instance by pressing on a tooth or the foot; with which and into successful action the powers necessary for its expulsion. In the same circumstances human instruments are had recourse to.

In speaking of the medical agents of Cathartics, the more prominent alone will be mentioned. To enumerate the diseases in which they may be advantageously used, or even those arising from, or depending on, a morbid condition of the alimentary canal in which they are more particularly required, would protract the subject beyond the proper limits: The enumeration of the former would include nearly the whole circle of diseases, and the catalogue of the latter would not be brief.

The most and most marked effect of cathar-

cathartics will remove [illegible] - whatever may, at the time, be contained in the intestines. This will be required [illegible] the ingesta from a [illegible] in the [illegible]. This [illegible] from a [illegible] in the [illegible] of [illegible], in consequence of a [illegible] or [illegible] of bile. We see accumulation with health, but not in improper quantity; is the improper quality of the ingesta, whether arising from the improper nature of matters taken, or from the altered secretion of bile, mucus, or mucus, - and equally requires the use of cathartics. Nor is the removal of offensive matter all that is accomplished in those cases where the secreting organs are in fault; but, by a second effect of cathartics; viz.

the altering of their secretions, and the restoring them when suspended; its reproduction is prevented. But when in consequence of the presence of the deranged function of the secretions connected with the intestines, the derangement itself is a disease, and can not continue long, or recovery if it be the river it is spoken of without the system generally becoming involved; and for its relief recourse is had to some ~~one~~ view of the class of medicines we speak of. From diversities depending on situation and in relief is at times required some of the cathartics

The next effect to be considered is that of reducing and keeping down the inflammatory action. In consequence of the increase of some of the secretions, all of which are derived from the general circulation, cathar-

-tics must abstract a considerable portion of fluid from the sanguiferous vessels, and thus diminish their action. From the augmented discharge of serum which hydragogues occasion, it would not be irrational to suppose, that they affected not only the quantity of the blood, but also, the relative proportions of its constituents, diminishing the proportion of serum. In this way their agency in removing serous accumulations has been explained by some; who assume that there is a certain deficiency in the sanguiferous system, not only for the quantity, but also, for the relative proportion of the constituent parts of its circulating fluid. There being a deficiency of serum, they suppose the absorbents are called upon to restore the deficiency, and thus serve the [illegible]

mulations from cavities. It is universally admitted that cathartics by their influence on the sanguineous system, and by assisting serous accumulations, either in the way mentioned or by assisting absorption in other ways. By the rapidity with which they may be made to cause the food taken in to pass through the alimentary canal, thus affording less time to the nutritive and absorbent vessels, cathartics will prevent repletion. It will however be admitted that the end would be more efficiently attained by a regulated regimen.

Some distinguished medical men think cathartics have been looked upon as deleterious too much: that from the fear of inducing debility their use has been more in fear, where required from other indications they are calculated to suffice.

thus, more than counterbalance the dan=
=ger from any debility they could possibly
induce

The last effect of cathartics which shall
be mentioned, is that of revulsion. During
their action blood is determined to the ab=
=dominal viscera in unusual quanti=
=ties. This disturbance in the distribution of
the general circulation must diminish
the determination to, and action in, the
other organs of the body. When we consid=
=er the copious vascular supply which is
afforded to the abdominal viscera, the in=
fluence they may exercise in this way will
not seem inconsiderable

Most of the benefit derived from cathartics,
as such, will probably result from their pro=
ducing some of the effects enumerated.
Many of them combine with the property

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which places them in this class, some other, which must be attended to in selecting arti= =cles from the class, according to the circum= =stances of the case in which they are to be used

It would be unnecessary to attempt to de= termine the relative importance of this, as compared with other classes of medici= =nal articles: let it suffice, that the use of cathartics could scarcely be dispsed with in the practice of medicine.